

# FIRMWARE RELEASE NOTES

NEW RELEASE AND UPDATE INFORMATION FOR USERS OF CMD SCSI HOST ADAPTERS

## WARNING

It is **MANDATORY** to use option "Z" to reset the controller to default configuration whenever you upgrade the firmware; see page 6.

## PROBLEMS AND QUESTIONS

If you encounter any problems or have any questions regarding the information contained in any Release Note, contact CMD's Technical Support Department directly at the following address and phone number.

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Attn: Technical Support

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CMD Bulletin Board

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Password = CMD

## PURPOSE FOR RELEASE NOTE

This Release Note describes changes in the CMD synchronous host adapter firmware revision B1/F1 released by 50045.

CQD-220/TM, CQD-223/TM, CQD-240/TM & CQD-243/TM  
CDU-720/TM & CDU-722/TM  
CQD-220/T, CQD-223/T, CQD-240/T & CQD-243/T  
CQD-220/M, CQD-223/M, CQD-240/M & CQD-243/M  
CDU-720/T & CDU-722/T  
CDU-720/M & CDU-722/M

F220Y1B1, F220Y2B1  
F720Y1B1, F720Y2B1  
F220T1F1, F220T2F1  
F22001F1, F22002F1  
F720T1F1, F720T2F1  
F72001F1, F72002F1

CQD-440/TM & CQD-443/TM

F440Y1B1, F440Y2B1

CBI-1000/TM  
CBI-1000/T  
CBI-1000/M  
CBI-1000/MB

F1KY1B1, F1KY2B1  
F1KT1B1, F1KT2B1  
F1K01B1, F1K02B1  
F1K01B1, F1K02B1

**NOTE** All BI firmware sets are the same, devices are labeled different.



AVAILABILITY NO. 12

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## REASON FOR CHANGE

- 1 Fixed Ultrix end of tape problem. Will now request the second tape volume.
- 2 Fixed copy problem with Exabyte drives. Problem shows up with EXB-8200 firmware 2618, and EXB-8500 firmware 03F0 and up.
- 3 Fixed Exabyte 8500 not changing density properly.
- 4 Fixed VMS fatal bugcheck crash problems due to too many credits.
- 5 Fixed problem with Tape Abort [CTRL] + Y which may cause system hang.
- 6 Fixed SCSI hang problem caused by polling while device is in SCSI disconnect stage.
- 7 Fixed occasional DU254 showing up unexpectedly when tape is disabled.
- 8 Fixed problem that occurs when some device cannot handle frequent SCSI synchronous handshaking.
- 9 Fixed tape multi-host problem. Tape hangs when one host mounts the tape drive and the other scans it at the same time.
- 10 Fixed disk multi-host problem when one host is down and the systems do not immediately failover to the other host.
- 11 Fixed error reporting if write file mark command is issued after system already knows tape is write protected.
- 12 Fixed Hitachi drive reporting hardware error during boot.
- 13 Runs Ultrix RA disk test.
- 14 Corrected tape remote density report algorithm so that the GUS, ONL, and SCC TMSCP commands response packet will reflect the current density status.
- 15 Fixed the Sony WORM timeout problem by extending the timeout limit for removable devices.
- 16 Fixed disk reselect timeout which caused the controller to hang. For multiple hosts with very busy SCSI activities, however, it is recommended you lower the hosts SCSI ID's.
- 17 Support is now available for disk error log with SCSI request sense information in device dependent information starting from the fourth word to the seventh word.
- 18 Fixed STC 9914 (M4 data) sync handshake with special phase sequence problem.
- 19 Utility fixed to work with the VAX 4000-500.
- 20 Tahiti drives will be classified as removable and media will be ejected when dismounted.

## IMPROVEMENTS

- 1 Firmware version is reported in utility.
- 2 Metrum 2150 VHS tape drive is supported.
- 3 Support VMS Phase 2 software volume shadow. Speed up merge copy for volume shadowing, see utility section for setup.
- 4 Ciprico Raid drive error reporting is supported. An error log is generated with failed drive information embedded.
- 5 Teac FD235HS (3.5 inch floppy DEC RX23 compatible) is supported.  
Teac FD55GS (5.25 inch floppy DEC RX33 compatible) is supported.
- 6 Support disk MSCP ON-LINE exclusive use modifier to reserve disk drive during multi-hosting.
- 7 Support faster space forward N records.





- 8 SA error in error log definitions:  
8001h/C001h (MSCP/TMSCP command packet read DMA error)  
8002h/C002h (MSCP/TMSCP response packet write DMA error)  
8006h/C006h (command/response ring read DMA error)  
8007h/C007h (command/response ring write DMA error)  
8009h/C009h (DMA error/timeout in host side access)  
800Dh/C00Dh (SCSI side bus hang)  
800Eh/C00Eh (Invalid connection ID in command packet)  
8013h/C013h (onboard utility back to system exit SA setup)  
8014h/C014h (Unexpected events in shadow configuration)  
8xxxh/Cxxxh (Unexpected SCSI events that controller do not handle)  
Bit 7 = 0 disk event, Bit 7 = 1 tape event.
- 9 It is not recommended to use the Utility while the system is running; in case you do so through the RS-232 Port, you can exit to the system with the "X" command.
- 10 Graphics terminal VCB01 and VCB02 is supported.  
After power up load the utility the normal way.

```
>>>U ; unjam
>>>I ; initialize
>>>D/P/W 2000IF40 20
>>>D/L 20088008 80000002
>>>D/W 2000146A A72E ; deposit A72E to CSR + 2
>>>D * 100

>>>S 400 ; FOR NORMAL VT220 TYPE TERMINAL

>>>S 402 ; FOR GRAPHICS TERMINAL
```

The Utility will start.





- 11 Disk error log will include SCSI Request Sense Data information. You can use the disk drive SCSI manual to decode the sense key.

#### CONTROLLER DEPENDENT INFORMATION

|             |          |                                  |
|-------------|----------|----------------------------------|
| LONGWORD 1. | 01000001 | ; Reserved                       |
|             | /.../    |                                  |
| LONGWORD 2. | 00000000 | ; Reserved                       |
|             | /.../    |                                  |
| LONGWORD 3. | 00000000 | ; Reserved                       |
|             | /.../    |                                  |
| LONGWORD 4. | 000300F0 | ; SENSE DATA BYTE 3, 2, 1, 0     |
|             | /.../    |                                  |
| LONGWORD 5. | 0E090402 | ; SENSE DATA BYTE 7, 6, 5, 4     |
|             | /.../    |                                  |
| LONGWORD 6. | 00000000 | ; SENSE DATA BYTE 11, 10, 9, 8   |
|             | /.../    |                                  |
| LONGWORD 7. | 00000000 | ; SENSE DATA BYTE 15, 14, 13, 12 |
|             | /.../    |                                  |

The above Sense Data is F0, 00, **03**, 00, 02, 04, 09, 0E, 00, 00, 00, 00, 00, 00, 00.  
Sense key of this example is 03 = medium error (bolded above).  
Typical Sense Key Error are 02 = not ready, and 04 = hardware error.

- 12 The following are improvements to the Utility. See Figure 1 and the list below for explanation.

|  |   |
|--|---|
| R = Toggle SCSI Reset                            | M = Toggle Density Mode                       |
| D = Toggle Disconnect                            | B = Toggle Buffer/Truncate Mode (Tape/Disk)   |
| S = Toggle Sync/Async                            | W = Toggle Write W/Verify (Disk only)         |
| C = Reconfigure Device                           | P = Toggle Prevent Medium Removal (Disk only) |
| U = Toggle Default Tape (Tape Only)              |   |
| A = Autoboot Start From Floppy Drive             |   |
| N = Write Protect from Controller Jumper Setting |   |
| V = Truncate Disk Size for Volume Shadowing      |   |
| E = Eject Disk after Dismount                    |   |
| L = Reserve/Release Disk Option                  |   |
| T = Reset All Device Modes to Default            |   |
| Z = Reset Controller to Default Configuration    |   |

Figure 1: Change Configuration Menu Selection

These are the new features: which will be added to the next revision of the manuals.

A = Autoboot Start From Floppy Drive  
N = Write Protect from Controller Jumper Setting  
V = Truncate Disk Size for Volume Shadowing  
E = Eject Disk after Dismount  
L = Reserve/Release Disk Option



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**R = Toggle SCSI reset**—If SCSI reset is enabled, a reset to the SCSI bus will be issued on power up. This should be turned OFF when multi-hosting is desired.

**D = Toggle Disconnect**—This option allows you to enable or disable disconnect for each device. If enabled the controller will indicate its ability to disconnect during the SCSI identify message.

**S = Toggle Sync/Async**—This option allows you to configure each device for synchronous or asynchronous operations. If synchronous is selected, the controller will attempt a synchronous handshake transfer data synchronously, otherwise they will transfer asynchronously.

**C = Reconfigure Device**—This option allows you to reconfigure the device at any time.

**M = Toggle Density Mode**—This option allows you to configure the controller for remote density selection. If enabled, remote density selection may take place. If enabled, the controller reports itself as a 'TU81.' If disabled, it reports itself as a "TK50."

**B = Toggle Buffer/Truncate Mode (Tape/Disk)**—For tape devices, this option allows the controller to configure each individual tape device for write caching. If enabled, the tape device will send command complete message and good status to the controller once the data has been transferred to the tape device's internal buffers. If disabled, such message and status will be sent when the data is actually written to the tape. For disk devices, you may toggle truncate disk size for individual disks, see "V = Truncate Disk Size for Volume Shadowing" for explanation.

**W = Toggle Write W/Verify**—This option will allow the SCSI command Write with Verify to be issued for MSCP write with verify modifier. When set to OFF (which is the default), the normal write command will be issued.

**P = Prevent Medium Removal**—This option is for removable disk drives only. When set to ON, a "Prevent Medium Removal" will be issued to a drive when it is mounted by VMS. This will disable the eject media push-button in front of the drive. An "Allow Medium Removal" will be issued when the drive is dismounted by VMS and the push-button will be enabled. This feature can be disabled and the media can be ejected at anytime.

**U = Toggle Default Tape**—This option allows you to force the presence of a tape unit to the operating system even if one does not exist. This is needed for some operating systems when the controller is connected to devices with a long self test procedure after power-up. If it is disabled, only units connected to the controller are seen by the operating system.

**A = Autoboot Start From Floppy Drive**—For LSI-11 systems only, this option allows you to set the system to boot directly from the first floppy drive; if no floppy drive is present, the system will begin to boot from the first device.



1. The first part of the paper discusses the importance of the study and the objectives of the research.

2. The second part of the paper describes the methodology used in the study, including the data collection and analysis techniques.

3. The third part of the paper presents the results of the study, which show a significant positive correlation between the variables.

4. The fourth part of the paper discusses the implications of the findings and provides recommendations for future research.

5. The fifth part of the paper concludes the study and summarizes the main findings.

6. The sixth part of the paper provides a detailed discussion of the limitations of the study and the potential sources of error.

7. The seventh part of the paper discusses the ethical considerations of the study and the measures taken to ensure the integrity of the research.

8. The eighth part of the paper provides a detailed discussion of the theoretical framework and the conceptual model used in the study.

9. The ninth part of the paper discusses the practical applications of the findings and the potential impact of the study on the field.

10. The tenth part of the paper provides a detailed discussion of the future research agenda and the potential areas for further exploration.

11. The eleventh part of the paper discusses the contributions of the study to the existing literature and the field.

12. The twelfth part of the paper provides a detailed discussion of the study's limitations and the potential for future research.

13. The thirteenth part of the paper discusses the ethical considerations of the study and the measures taken to ensure the integrity of the research.



**N = Write Protect from Controller Jumper Setting**—This option allows you to write protect disk 0 and disk 1 from the front panel. For the CQD-220, call CMD for details. For the CQD-240 and CQD-260, jumper settings W4 and W5 for the front panel must be IN. For the CQD-440, connector J7 must be installed. Default is OFF.

**V = Truncate Disk Size for VMS Volume Shadowing**—This option allows the size of the disk to be truncated to multiples of 126 blocks to allow VMS volume shadowing copy process to reach higher performance. The message "\*\*\* WARNING \*\* Truncate Size ON/OFF will be toggled, Are you sure?" will display before truncate switch can be toggled. If this feature is used on a disk that contains valid data, the data must be removed and later restored after turning this feature ON. Use option "B" to toggle individual devices.

**E = Eject Disk after Dismount**—This option allows you to specify whether the removable disk cartridges will eject from the drive after dismount.

**L = Reserve/Release Disk Option**—This option is to let the MSCP ON-LINE exclusive use modifier to be operable.

**T = Reset all Device Modes to Default**—These modes are—disconnect, synchronous, Prevent Medium Removal, Write with Verify, and Buffer modes.

**Z = Reset Controller to Default Configuration**—This option allows you to set the controller to its factory default configuration. This will set the /TM to support four disk drives, three tape drives; the /M to support seven disk drives; /T to support seven tape drives; disconnect, SCSI reset, synchronous communication, buffer mode, prevent medium removal and density selection enabled; write with verify disabled, front panel write protect disabled, reserve/release disk is enabled, and default tape disabled. **ALWAYS** use this feature before you reconfigure the board.

**WARNING**

It is **MANDATORY** to use option "Z" to reset the controller to default configuration whenever you upgrade the firmware.

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
JANUARY 1950

TO THE HONORABLE CHAIRMAN OF THE BOARD OF TRUSTEES  
OF THE UNIVERSITY OF CHICAGO  
FROM THE DEPARTMENT OF CHEMISTRY

SUBJECT: REPORT ON THE PROGRESS OF RESEARCH  
DURING THE YEAR 1949

THE DEPARTMENT OF CHEMISTRY  
UNIVERSITY OF CHICAGO

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